AMPHIPODA

BY

K. H. BARNARD, D.Sc., F.L.S.,
South African Museum, Cape Town.

WITH FOUR TEXT-FIGURES

CONTENTS

INTRODUCTION.

THE collection of Amphipods obtained by the naturalists of the Great Barrier Reef Expedition is not a large one. That is mainly due to the Expedition being designed, not so much for collecting purposes, as for ecological and experimental work.

Small as it is, however, the collection is an interesting one. It contains species not hitherto recorded from the Australian coasts, one species which has not been collected since its description in 1880, and three species which it seems advisable to regard as undescribed. By far the greater part of the collection consists of planktonic Hyperiids.

The collection serves to show what a vast field awaits anyone with the opportunity of carrying out intensive investigation, with special methods, of the Amphipodan fauna of the Australian coasts.

My thanks are due to Dr. W. T. Calman, F.R.S., of the British Museum, for the opportunity of studying this collection ; and to Dr. T. A. Stephenson, who was a member of the Expedition, for information relative to the various species.

As regards the Gammarids there is little to be said. Fourteen species were collected, and of these four, including the three new species, all came from one station (St. 29). Ten species were found at Low Isles, including one widely-distributed pelagic form. The material of some species was too scanty for specific determination, belonging to the difficult genera *Maera*, *Hyale*, and *Ampithoe*.

The re-discovery of *Xenocheira* in Australian waters is interesting, though here again unfortunately only a single specimen is available.

With regard to the apparent poverty of Gammarids, Dr. Stephenson has supplied me with the following note : " The small number of Gammarids collected from the intertidal region at Low Isles is due partly to the fact that many of them live among coral shingle and can only be caught by the expenditure of much time ; but it is probably also the reflection of a genuine (relative) poverty in the intertidal Gammarid fauna. On an English shore the Gammarids form a very noticeable element, whereas at Low Isles it was often difficult to find any, except in certain places where they were abundant.

" The collection of planktonic Amphipods from the station 3 miles east of Low Isles, on the other hand, may probably be regarded as a series very fairly representative of the Amphipod fauna of that area, since these collections were made systematically once a week throughout a period of twelve months, and contain a considerable number of specimens."

The most abundant Hyperiid is undoubtedly *Hyperia sibaginis*, Stebb., which occurred, usually in quantity, at 41 stations. It would be more accurate to say it occurred on 41 occasions, as 34 of the occasions were at the weekly station. About 750 specimens were obtained (see also *infra*, p. 127).

The next most abundant species were as follows :

Tullbergella cuspidata . .	87 specimens at	23 stations	(3 localities).
Lycaea bajensis . . .	60 ,,	9 ,,	(1 locality).
Tetrathyrus forcipatus . .	34 ,,	9 ,,	(3 localities).
Simorhynchotus antennarius .	21 ,,	11 ,,	(3 ,,).
Glossocephalus milne-edwardsi .	15 ,,	10 ,,	(4 ,,).

The other species were obtained mostly as solitary specimens at a few, or at single, stations.

All the species are well known, or moderately well known, tropical and sub-tropical species of wide distribution. *Lycaea bajensis* and *Eupronoe laticarpa* are the only two which have not been widely recorded, unless the former is synonymous with *L. pulex* (see Pirlot, 1930, p. 25).

LIST OF STATIONS AT WHICH AMPHIPODA WERE COLLECTED, WITH THE SPECIES OBTAINED AT EACH STATION.*

Low Isles. M7. Shore collection. 20.iii.29.
Ampithoe, sp.

Low Isles. Shore collection. Tripneustes Spit. 21.iii.29.
Hyale, sp.

Low Isles. F9. Shore collection. 4.iv.29.
Hyale, sp.

Low Isles. F8. Shore collection. 10.iv.29.
Maera, sp.
Ceradocus rubromaculatus (Stimpson.).

* Station numbers in Roman numerals refer to dredgings. Those in Arabic numerals refer to the list of plankton stations in Vol. II, No. 2 (Russell and Colman, " The Zooplankton : I. Gear, Methods and Station Lists "). Shore collection numbers refer to the Key Chart of Low Isles in Vol. III, No. 2 (Stephenson and Others, " The Structure and Ecology of Low Isles and other Reefs," p. 23).

Low Isles. F5. Shore collection. 24.iv.29.
Ceradocus rubromaculatus (Stimpson.).

Low Isles. Lagoon. 20.vii.28.
Tullbergella cuspidata, Bov.

Low Isles. Anchorage. 1.x.28. Small medium tow-net. night haul.
Perioculodes aequimanus (Kossm.).

Low Isles. Anchorage. 20.xi.28. Coarse tow-net, day haul.
Synopia ultramarina. Dana.

Low Isles. Anchorage. 29.xi.28. Coarse tow-net. surface, night haul.
Synopia ultramarina, Dana.

Low Isles. Over reef flat. 16.v.29. Small medium tow-net. day.
Pontharpinia rostrata (Dana).
Xenocheira fasciata, Hasw.

Low Isles. Shore collection. (E. A. Fraser.)
Hyale sp.

Station XVI. 9.iii.29. $\frac{1}{2}$ mile W. of N. Direction Is., 20 fathoms, stony.
Leucothoe spinicarpa (Abildg.). From Tunicates.

Station XIX. 10.iii.29. $\frac{1}{2}$ mile N. of Eagle Is., 10 fathoms, shell gravel.
Leucothoe spinicarpa (Abildg.). } From Tunicates and Sponges.
,, *furina* (Sav.). }

Station XXII. 11.iii.29. To E. of Snake Reef. $13\frac{1}{2}$ fathoms, mud.
Leucothoe furina (Sav.). From Tunicates.

Station 1. 27.vii.28. 3 miles E. of Low Isles. 32 metres. C. net, oblique.
Hyperia sibaginis, Stebb.

Station 2. 30.vii.28. 3 miles E. of Low Isles. 32 metres. C. net, oblique.
Vibilia viatrix, Bov.
Hyperia sibaginis, Stebb.
Tullbergella cuspidata, Bov.

Station 3. 4.viii.28. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Hyperia sibaginis, Stebb.
Tullbergella cuspidata, Bov.
Glossocephalus milne-edwardsi, Bov.

Station 4. 7.viii.28. 1 mile N. of Low Isles. C. net, horizontal, surface.
Simorhynchotus antennarius (Claus).
Parascelus edwardsii, Claus.

Station 5. 11.viii.28. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Hyperia sibaginis, Stebb.

Station 6. 17.viii.28. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Hyperia sibaginis, Stebb.

Station 7. 22.viii.28. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Hyperia sibaginis, Stebb.
Tullbergella cuspidata, Bov.

Station 8. 24.viii.28. 16° 30′ S., 145° 52′ E. Trinity Opening. 45 metres. S. net, oblique.
Hyperia sibaginis, Stebb.
Parascelus edwardsii, Claus.

Station 9. 31.viii.28. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Hyperia sibaginis, Stebb.

Station 10. 4.ix.28. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Hyperia sibaginis, Stebb.
Tullbergella cuspidata, Bov.

Station 11. 6.ix.28. 16° 24′ S., 145° 52′ E. Trinity Opening. 61 metres. S. and C. nets, oblique.
Tullbergella cuspidata, Bov.
Glossocephalus milne-edwardsi, Bov.

Station 11. 6.ix.28. 16° 24′ S., 145° 52′ E. Trinity Opening. 61 metres. Nansen net vertical.
Eupronoe maculata, Claus.

Station 12. 11.ix.28. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Hyperia sibaginis, Stebb.
Tullbergella cuspidata, Bov.

Station 13. 20.ix.28. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Hyperia sibaginis, Stebb.
Tullbergella cuspidata, Bov.

Station 15. 2.x.28. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Hyperia sibaginis, Stebb.
Eupronoe laticarpa, Steph.
Sympronoe parva (Claus).

Station 16. 3.x.28. 3 miles E. of Low Isles. 32 metres. C.-Cl. net, horizontal.
Hyperia sibaginis, Stebb.
Eupronoe maculata, Claus.
Tullbergella cuspidata, Bov.

Station 17. 8.x.28. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Tullbergella cuspidata, Bov.

Station 18. 15.x.28. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Hyperia sibaginis, Stebb.

Station 19. 20.x.28. 16° 20′ S., 146° 3′ E. Outside Trinity Opening. S. net, vertical, 180 m.w.o., bottom 225 metres.
Scina tullbergi (Bov.).
Hyperia sibaginis, Stebb.
Leptocotis tenuirostris (Claus).

Station 20. 20.x.28. 16° 19′ S., 146° 7′ E. Outside Trinity Opening. Nansen net, vertical, 250 m.w.o., bottom 600 plus metres.
Primno macropa, Guer.
Lycaeopsis themistoides, Claus.

Station 21. 22.x.28. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique, night haul.
Synopia ultramarina, Dana.
Sympronoe parva (Claus).
Lycaea bajensis, Shoem.
Simorhynchotus antennarius (Claus).

Station 22. 23.x.28. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Eupronoe maculata (Claus).

Station 23. 2.xi.28. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Eupronoe maculata (Claus).
Lycaea bajensis, Shoem.
Tullbergella cuspidata, Bov.

Station 24. 6.xi.28. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Vibilia armata, Bov.
Lycaea bajensis, Shoem.
Tullbergella cuspidata, Bov.

Station 26. 19.xi.28. 16° 24′ S., 145° 53½ E. Trinity Opening. 57 metres. S. net, oblique.
Hyperia sibaginis, Stebb.

Station 27. 21.xi.28. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Hyperia sibaginis, Stebb.

Station 28. 23.xi.28. 16° 19′ S., 146° 5′ E. Outside Trinity Opening. S. net, vertical, 600 m.w.o., bottom 600 plus metres.
Vibilia armata, Bov.
Paraphronima crassipes, Claus.
Oxycephalus clausi, Bov.

Station 29. 24.xi.29. 16° 17′ S., 146° 2′ E. Outside Trinity Opening. B.S. net, 205 metres.
Ampelisca acinaces, Stebb.
Pardalisca australiensis, n. sp.
Oediceroides apicalis, n. sp.
Rhachotropis platycera, n. sp.
Tetrathyrus forcipatus, Claus.

Station 30. 28.xi.28. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Simorhynchotus antennarius (Claus).

Station 30A. 29.xi.28. 3 miles E. of Low Isles. 32 metres. C. net, oblique.
Simorhynchotus antennarius (Claus).

Station 31. 2.xii.28. 3 miles E. of Low Isles. 32 metres. B.S. net.
Hyperia sibaginis, Stebb.

Station 32. 5.xii.28. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Rhabdosoma armatum (M. Edw.).
,, *whitei*, Bate.
Tetrathyrus forcipatus, Claus.

Station 33. 14.xii.28. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Hyperia sibaginis, Stebb.
Lycaea bajensis, Shoem.

Station 34. 19.xii.28. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Hyperia sibaginis, Stebb.

Station 35. 27.xii.28. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Hyperia sibaginis, Stebb.
Lycaea bajensis, Shoem.
Oxycephalus clausi, Bov.
Rhabdosoma whitei, Bate.

Station 36. 4.i.29. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Glossocephalus milne-edwardsi, Bov.
Rhabdosoma whitei, Bate.

Station 37. 14.i.29. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Hyperia sibaginis, Stebb.
Tullbergella cuspidata, Bov.
Glossocephalus milne-edwardsi, Bov.

Station 39. 30.i.29. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Brachyscelus globiceps (Claus).

Station 40. 6.ii.29. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Vibilia viatrix, Bov.
Hyperia sibaginis, Stebb.
Tullbergella cuspidata, Bov.
Tetrathyrus forcipatus, Claus.

Station 41. 13.ii.29. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Tullbergella cuspidata, Bov.
Tetrathyrus forcipatus, Claus.

Station 42. 18.ii.29. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Hyperia sibaginis, Stebb.
Simorhynchotus antennarius (Claus).

Station 43. 26.ii.29. 15° 16′ S., 145° 26½′ E. Off Cape Bedford. 30 metres. S. net, oblique.
Glossocephalus milne-edwardsi, Bov.

Station 44. 27.ii.29. 14° 44′ S., 145° 27½′ E. Off Lizard Is. 31 metres. S. net, oblique.
Hyperia sibaginis, Stebb.

Station 45. 28.ii.29. 14° 31′ S., 145° 35′ E. Outside Cook's Passage. S. net, vertical, 500 m.w.o., bottom 600 plus metres.
Scina lepisma, Chun.
Hyperia sibaginis, Stebb.
Primno macropa, Guer.
Brachyscelus globiceps (Claus).
Tetrathyrus forcipatus, Claus.

Station 46. 28.ii.29. 14° 32′ S., 145° 32′ E. Inside Cook's Passage. 33 metres. S. net, oblique.
Simorhynchotus antennarius (Claus).
Tullbergella cuspidata, Bov.
Glossocephalus milne-edwardsi, Bov.

Station 47. 4.iii.29. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Hyperia sibaginis, Stebb.
Simoryhnchotus antennarius (Claus).
Glossocephalus milne-edwardsi, Bov.

Station 48. 15.iii.29. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Hyperia sibaginis, Stebb.
Glossocephalus milne-edwardsi, Bov.

Station 49. 17.iii.29. 15° 47′ S., 145° 47′ E. Inside Papuan Pass. 46 metres. S. net, oblique.
Hyperia sibaginis, Stebb.
Lycacopsis zamboangae (Stebb.).
Brachyscelus globiceps (Claus).
Simorhynchotus antennarius (Claus).

Station 50. 18.iii.29. Outside Papuan Pass. S. net, 400 m.w.o., bottom 400 metres.
Hyperia sibaginis, Stebb.
Eupronoe maculata (Claus).
Brachyscelus globiceps (Claus).

Station 51. 25.iii.29. 3 miles E. of Low Isles. 32 metres. C. net, oblique.
Tullbergella cuspidata, Bov.

Station 52. 6.iv.29. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Simorhynchotus antennarius (Claus).
Tetrathyrus forcipatus, Claus.

Station 53. 13.iv.29. 3 miles E. of Low Isles. 32 metres. C. net, oblique.
Hyperia sibaginis, Stebb.

Station 54. 20.iv.29. 3 miles E. of Low Isles. 32 metres. C. net, oblique.
Hyperia sibaginis, Stebb.

Station 55. 26.iv.29. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Hyperia sibaginis, Stebb.
Tullbergella cuspidata, Bov.

Station 56. 7.v.29. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Hyperia sibaginis, Stebb.
Tullbergella cuspidata, Bov.
Glossocephalus milne-edwardsi, Bov.
Tetrathyrus forcipatus, Claus.

Station 57. 18.v.29. 3 miles E. of Low Isles. 32 metres. C. net, oblique.
Lycaea bajensis, Shoem.
Tullbergella cuspidata, Bov.

Station 58. 25.v.29. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Hyperia sibaginis, Stebb.
Lycaea bajensis, Shoem.
Simorhynchotus antennarius (Claus).

Station 59. 31.v.29. 3 miles E. of Low Isles. 32 metres. S. net, oblique.
Hyperia sibaginis, Stebb.
Lycaea bajensis, Shoem.
Tullbergella cuspidata, Bov.
Tetrathyrus forcipatus, Claus.

Station 60. 7.vi.29. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Hyperia sibaginis, Stebb.
Lycaea bajensis, Shoem.
Tullbergella cuspidata, Bov.

Station 61. 14.vi.29. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Hyperia sibaginis, Stebb.
Tullbergella cuspidata, Bov.

Station 63. 24.vi.29. 3 miles E. of Low Isles. 32 metres. C. net, oblique.
Hyperia sibaginis, Stebb.

Station 66. 11.vii.29. 3 miles E. of Low Isles. 32 metres. S. and C. nets, oblique.
Hyperia sibaginis, Stebb.
Simorhynchotus antennarius (Claus).
Glossocephalus milne-edwardsi, Bov.

Station 67. 17.vii.29. 3 miles E. of Low Isles. 32 metres. S. and C. nets. oblique.
Hyperia sibaginis, Stebb.
Tetrathyrus forcipatus, Claus.

SYSTEMATIC NOTES AND DESCRIPTIONS OF NEW SPECIES.

GAMMARIDEA.

Family Ampeliscidae.

Genus *Ampelisca*, Krøyer.

Ampelisca acinaces, Stebbing.

Stebbing, 1906, p. 108, figs. 25, 26.

Occurrence.—St. 29. 7 specimens 5–7·5 mm.

Remarks.—These specimens agree well with *acinaces*, except that the postero-inferior angle of pleon segment 3 is produced in a distinct acute point, with the margin above it sinuous, and that the 6th joint of peraeopod 5 is markedly ovate, being wider than the 3rd, 4th or 5th joints. Second joint of mandibular palp linear.

Distribution.—East Australia.

Family Phoxocephalidae.

Genus *Pontharpinia*, Stebbing.

Pontharpinia rostrata (Dana).

(Fig. 1.)

Stebbing, 1906, p. 146.

Occurrence.—Low Isles. Over reef flat. 12 ♂♂ 3 mm.

Remarks.—These specimens are attributed to Dana's species with a certain amount of reserve. They are not in conflict with Dana's figure as reproduced in Bate ('Cat. Amphip. Crust. B.M.,' 1862, p. 118, pl. xx, fig. 4); in fact Dana's delineation of the 4th joint of peraeopod 3 in particular fits the present specimens exactly. But the hands of gnathopods 1 and 2 are heavier (*cf.* Stebbing's description, 1906). Until the Australian fauna is better known these specimens may quite well be assigned to *rostrata*. Colour (as preserved) pale pink, the peraeon of a deeper shade than the pleon, eyes black.

Distribution.—Sooloo Sea and Port Jackson.

Family Leucothoidae.

Genus *Leucothoe*, Leach.

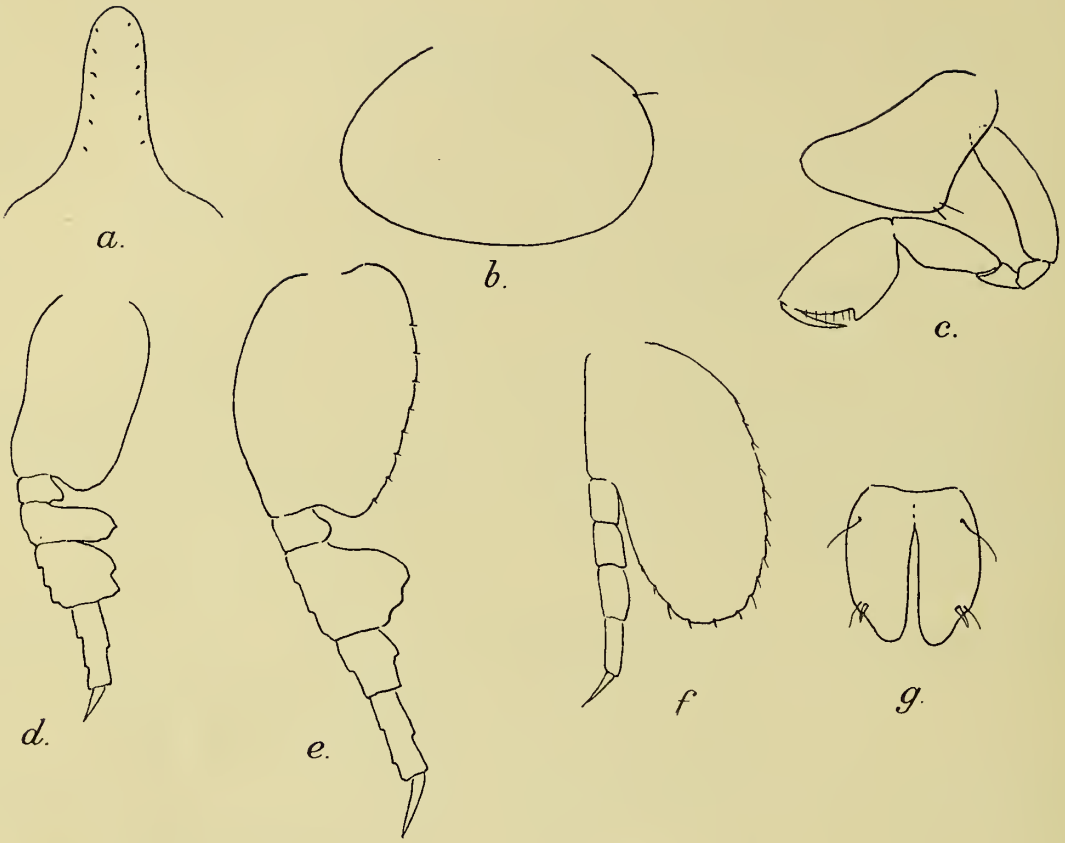
Leucothoe spinicarpa (Abildgaard).

Barnard, 1916, p. 148, and 1930, p. 338.

Occurrence.—St. XVI. From Tunicate, *Polycarpa pedata*, Herdman. 1 ♀, 10 mm.

St. XIX. From a sponge. 1 ♀, 6·5 mm., 1 ovig. ♀, 7 mm.

Distribution.—Cosmopolitan.



Text-fig. 1.—*Pontharpinia rostrata* (Dana).—*a*. Dorsal view of rostrum. *b*. Pleon segment 3 *c*. Gnathopod 1. *d*, *e*, *f*. Peraeopods 3–5 (spines and setae omitted). *g*. Telson.

Leucothoe furina (Savigny).

Schellenberg, 1928, p. 635.

Occurrence.—St. XIX. From atrial siphon of Tunicate, *Polycarpa aurita* (Sluiter). 2 ♂♂, 7 and 10 mm.

St. XIX. From branchial sac and peribranchial cavity of Tunicate, *Cnemidocarpa irma*, Hartm. 3 ♂♂, 7–8 mm., 1 ♀ with empty brood-sac, 9 mm.

St. XIX. From branchial sac of Tunicate, *Phallusia depressiuscula* (Heller). 1 ♀, 8 mm.

St. XXII. From branchial sac of Tunicate, *Cnemidocarpa irma*, Hartm. 1 ♂, 6 mm., 1 ovig. ♀, 7 mm.

Remarks.—These specimens agree with Schellenberg's account as regards the shape of the postero-inferior angles of pleon segments 2 and 3. In the shape of the hand of gnathopod 2 there is no sexual difference.

Distribution.—Gulf of Suez and Suez Canal, Red Sea, Ceylon, Laccadive Archipelago, Gambier Archipelago.

Family Pardaliscidae.

Genus *Pardalisca*, Krøyer.

Stebbing, 1906, p. 221.

Pardalisca australiensis, n. sp.

Occurrence.—St. 29. 1 ♂, 7·5 mm.

Description.—Very close to *cuspidata*. No dorsal teeth on pleon segment 3, 2 on segment 4, 1 on segment 5. Fingers of gnathopods 1 and 2, and outer plate of maxilla 1 as in *cuspidata*; the latter appendage has 6 dentate spines and 1 seta, and the palp is widened distally, with a spinule in each notch along its distal margin.

Remarks.—The "Challenger" obtained *P. marionis* at Marion Island, and the "Discovery" collected a new species in the Antarctic. This constitutes the third record of a species of this genus in the Southern Hemisphere.

The posterior half of the body of *marionis* was missing, so a comparison with that species is not possible. The 1st maxilla, however, is much more like Sars's figure of that of *cuspidata* (Sars, 1895, pl cxli) than Stebbing's figure (1888, pl xciv) of that of *marionis*.

Family Oedicerotidae.

Genus *Perioculodes* G. O. Sars.

Perioculodes aequimanus (Kossmann).

Stebbing, 1906, p. 238.

Chilton, 1921, p. 527, fig. 2 (*longimanus*, non Bate & Westw.).

Schellenberg, 1928, p. 641, fig. 200.

Occurrence.—Anchorage, Low Isles. 1 ♂, 1 ♀, 2·5 mm.

Remarks.—With only two specimens it would not be advisable to regard the specific determination as absolutely certain, though the characters seem to bear out Schellenberg's remarks on the difference of this species from *longimanus* (Bate & Westwood). The antennae also are in harmony with Chilton's figure.

P. megapleon, Giles, *puliciformis*, Giles, and *serra*, Walker, 1904, are probably synonymous; Schellenberg does not refer to *serra*, Walker.

The genus has not hitherto been recorded from the Australasian region.

Distribution.—Red Sea, Suez Canal, Chilka Lake, Talé Sap. Probably also Bay of Bengal and Ceylon.

Genus *Oediceroides*, Stebbing.

Oediceroides apicalis, n. sp.

(Fig. 2.)

? Chilton, 1921*a*, p. 66 (*ornatus*, non Stebbing).

Occurrence.—St. 29. 3 ♀♀, 6–9 mm.

Description.—I am inclined to think that these specimens are probably the same as Chilton's single specimen, but not the same as Stebbing's *ornatus* (1888, p. 855, pl. lxiv).

The body appears to be somewhat corrugated, especially in the largest specimen, but the preservation of the specimens is not quite perfect ; there do not appear to be any tubercles, thus agreeing with Chilton's specimen. Chilton's description of the rostrum might apply to the present specimens, though he does not state that it is recurved or unciform. This feature, as well as the strongly curved profile of the whole rostrum, clearly separates these specimens from *ornatus*, and is very distinctive.

Text-fig. 2.—*Oediceroides apicalis*, n. sp. Rostrum.

In other respects there are no marked diagnostic features, the gnathopods agreeing with those of *ornatus*. Eyes elongate-oval, contiguous along mid-dorsal line, maroon in colour.

Family Synopiidae.

Genus *Synopia*, Dana.

Synopia ultramarina, Dana.

Barnard, 1930, p. 367.

Occurrence.—St. 21. 2 ♂♂, 2 ♀♀, 3·5–4 mm.

Anchorage, Low Isles, 1.x.28. 45 specimens 2–5 mm., including ♂♂, ovig. ♀♀ and juv.

Anchorage, Low Isles. 20.xi.28. 26 specimens 2–5 mm., ♂♂, ♀♀, juv.

Anchorage, Low Isles. 29.xi.28. 50 specimens 2–5 mm., ♂♂, ♀♀, juv.

Distribution.—Indo-Pacific, tropical Atlantic.

Family Eusiridae.

Genus *Rhachotropis*, S. I. Smith.

Rhachotropis platycera, n. sp.

(Fig. 3.)

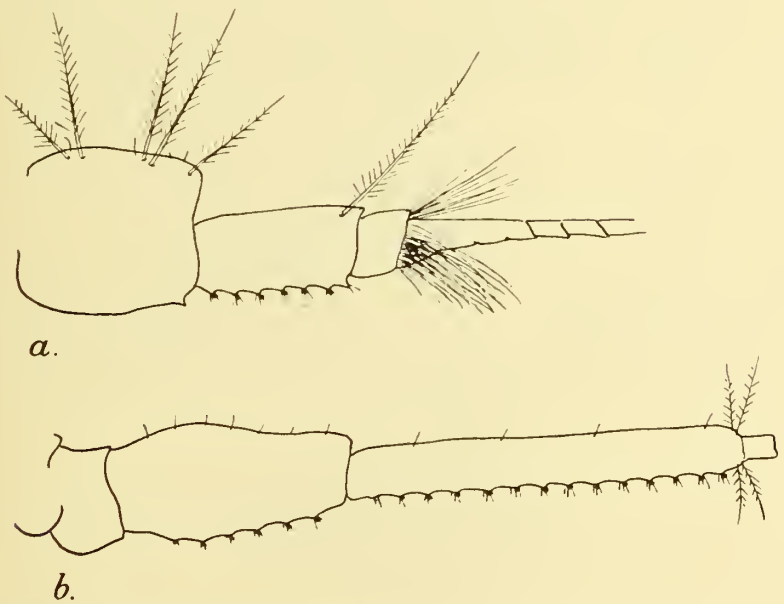
Occurrence.—St. 29. 3 ♂♂, 1 ♀ (with fully developed brood-sac), 4–4·5 mm.

Description.—Close to *kergueleni*, Stebbing. Eyes well developed, horizontally

ovoid, very large, but well separated on top of head, similar in both sexes. Peraeon segment 7 with a medio-dorsal tooth on hind margin, not as large, however, as that on pleon segments 1 and 2. Pleon segments 1 and 2 tricarinate, the keels ending in teeth; segments 3 and 4 with only a medio-dorsal keel, ending in a tooth. Postero-inferior margin of pleon segment 3 serrate. Telson cleft almost to middle.

Peraeopods 3–5, 2nd joint nearly as in *kergueleni*, except that postero-inferior corner is acute only in peraeopod 5.

Antennae 1 and 2, peduncle in male noticeably flattened dorso-ventrally; antenna 1, 1st joint with 5–6 long plumose setae on outer margin, 2nd joint with 1 similar seta on outer apex, inner margin with bundles of short setae, each surrounding a calceolus, 3rd joint,



Text-fig. 3.—*Rhachotropis platycera*, n. sp. *a*, *b*. Dorsal view of left antennae 1 and 2 of ♂.

very short, bearing on its apical margin, chiefly ventrally, a dense brush of setae, flagellum slender, calceoliferous. Antenna 2, 4th and 5th joints with setules on outer margin, bundles of setae with calceoli on inner margin, the latter with 2 pairs of plumose setae on apex, flagellum slender, calceoliferous. In ♀ antennae similar to those of ♂, but the peduncles are not flattened.

Remarks.—Although close to *kergueleni* in the structure of the pleon and the basal joints of peraeopods 3–5, this species is at once distinguished by the presence of eyes. They are mart ked noonly by brown pigment, but by a distinct convexity, which, if it had been present in *kergueleni*, could scarcely have escaped Stebbing's notice. The antennae, although somewhat resembling Stebbing's figures (1888, pl. lxxxv), are distinct, especially if the "Challenger" specimens were males (Stebbing does not state the sex). The telson is very much more deeply cleft.

Family Gammaridae.

Genus *Ceradocus*, Costa.

Ceradocus rubromaculatus (Stimpson).

Stebbing, 1906, p. 430.
Schellenberg, 1925, p. 154, and 1928, p. 644

Occurrence.—Low Isles. F8. Shore collection. 10.iv.29. 1 ♂, 7 mm.
Low Isles. F5. Shore collection. 24.iv.29. 1 ♂, 8 mm.; 1 ovig. ♀, 7·5 mm.
Remarks.—Neither of the males shows any strong teeth on the palms of gnathopod 2.
Distribution.—Indo-Pacific, West, South and East Africa.

Genus *Maera*, Leach.

Maera, sp.

Occurrence.—Low Isles. F8. Shore collection. 10.iv.29. 1 ♀, 6 mm.
Remarks.—It is impossible to assign a single female specimen to any particular species amongst the several which are known from the Australasian region.

Family Talitridae.

Genus *Hyale*, Rathke.

Hyale, sp.

Occurrence.—Low Isles. Shore collection. (E. A. Fraser.) 1 ♂, 7 mm.
Low Isles. Shore collection. Tripneustes Spit. 21.iii.29. 3 ♂♂. 1 ovig. ♀, 5·5–7 mm.
Low Isles. F9. Shore collection. 4.iv.29. 3 mutilated specimens.
Remarks.—The material is too scanty for specific identification in this difficult genus. Several nominal species are reported from Australian waters.

Family Aoridae.

Genus *Xenocheira*, Haswell.

In 1906 Stebbing placed this genus in the *Photidae*, although Haswell had referred to its affinities with *Microdeutopus* (*Microdeuteropus*) (Haswell, 'Proc. Linn. Soc. N.S.W.,' vol. x, p. 106, 1885). In 1907 Chevreux ('Mem. Soc. Zool. France,' vol. xx, p. 510) described a second species, and on the basis of the mouth-parts transferred the genus to the *Aoridae* (see also Stebbing, 1910, p. 605).

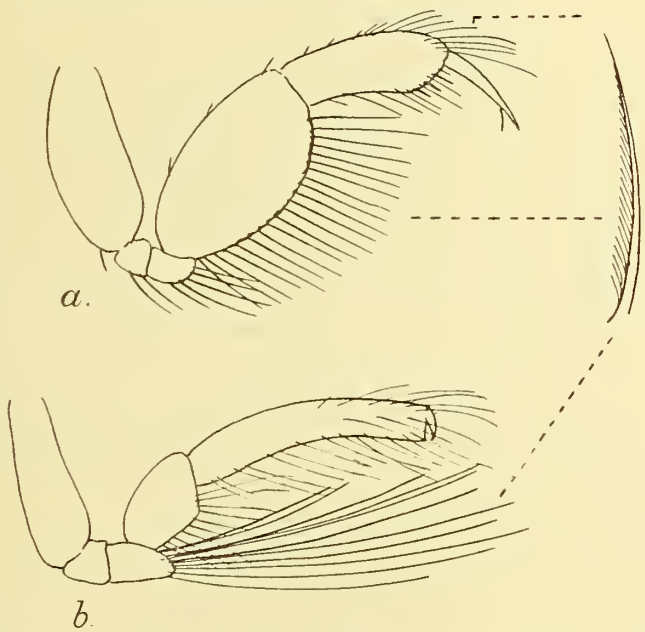
Xenocheira fasciata, Haswell.

(Fig. 4.)

Stebbing, 1906, p. 624.

Occurrence.—Low Isles. Over reef flat. 16.v.29. 1 ♀, 3 mm.

Remarks.—Chevreux (*l. c.*) has given good figures of *seurati*, from which it is clear that the present specimen cannot be identified with that species. There is every reason to assume that it is the same as Haswell's species, and though gnathopods 1 and 2 of the present specimen do not agree with his figures, it is impossible to place much reliance on the accuracy of such crude drawings.



Text-fig. 4.—*Xenocheira fasciata*, Hasw. *a*, *b*. Gnathopods 1 and 2.

From the figures here given it will be seen that in gnathopod 1 the 5th joint is very stout, both broader and longer than the 6th joint; the latter is scarcely subchelate. Gnathopod 2 is a perfectly normal appendage, the 5th joint not articulating with the 3rd as well as the 4th, but attached to the inner lower surface of the latter. This mode of attachment and the consequent inwardly bent position of the distal joints (more or less transverse across the body) is found in several allied genera (*cf.* Barnard, " Discovery " Report, in press). When such a limb is placed under a cover-slip the tendency is for the distal joints to become twisted. I believe that this is the explanation of the remarkable statement that the 5th articulates with the 3rd as well as the 4th joint.

In the present specimen the 5th joint of gnathopod 2 is not nearly so expanded as in Haswell's figures, or even Chevreux's figure of *seurati*.

When further material is available it will probably be found that not only is there sexual dimorphism in the 1st gnathopod of the adults, but considerable growth changes in the form of both gnathopods.

The species has not been collected in Australia since Haswell's time.

Distribution.—Port Jackson.

Family Ampithoidae.

Genus *Ampithoe*, Leach.

Ampithoe, sp.

Occurrence.—Low Isles. M7. Shore collection. 20.iii.29. 1 mutilated ♀, 7 mm.

Remarks.—Specific determination of a single female is impossible. The colour as preserved is dull purplish or vinous.

HYPERIIDEA.

Family Scinidae.

Genus *Scina*, Prestandrea.

Scina tullbergi (Bovallius).

Stephensen, 1918, p. 129 (*pacifica*).
Wagler, 1926, p. 384, figs. 34, 35.

Occurrence.—St. 19. 1 ♂, 3 mm.
Distribution.—Indo-Pacific, Atlantic.

Scina lepisma, Chun.

Wagler, 1926, p. 410, fig. 45, and 1927, p. 107, fig. 13.

Occurrence.—St. 45. 1 specimen in poor condition.
Distribution.—Indian Ocean ; tropical Atlantic.

Family Vibiliidae.

Genus *Vibilia*, Milne-Edwards.

Vibilia viatrix, Bovallius.

Barnard, 1930, p. 403.
Pirlot, 1930, p. 10.

Occurrence.—St. 2. 1 ♀, 7 mm.
St. 40. 2 ovig. ♀♀, 5·5 mm.
Remarks.—Colour after preservation in formalin, amber, with dark maroon stellate specks, eyes very dark.
Distribution.—Indo-Pacific, Mediterranean, Atlantic.

Vibilia armata, Bovallius.

Barnard, 1930, p. 404.

Occurrence.—St. 24. 1 ♀, 4·5 mm.
St. 28. 1 ♂, 6·5 mm.
Distribution.—Indo-Pacific, Mediterranean, Atlantic.

Family Paraphronimidae.

Genus *Paraphronima*, Claus.

Paraphronima crassipes, Claus.

Barnard, 1930, p. 409.

Occurrence.—St. 28. 1 ♀, 10 mm.
Distribution.—Pacific, Mediterranean, Atlantic.

Family Hyperiidae.

Genus *Hyperia*, Latreille.

Hyperia sibaginis, Stebbing.

Stebbing, 1888, p. 1379, pl. clxv (♂).
Pirlot, 1930, p. 18, fig. 6 (♀).
(*Non* Vosseler, 1901 = *Hyperioides longipes*.)

Occurrence.—St. 1. 30 ♂♂, adult and penult. instars, and ♀♀, 2–3·5 mm.
St. 2. 24 ♂♂, adult and penult. instars, and ♀♀, 2–3·5 mm.
St. 3. 32 ♂♂, adult and penult. instars, and ♀♀, 2–3·5 mm.
St. 5. 40 ♂♂, adult and penult. instars, and ♀♀, 2–3·5 mm.
St. 6. A lot of ♂♂, adult and penult. instars, and ♀♀, 2–3·5 mm.
St. 7. 36 ♂♂, adult and penult. instars, and ♀♀, 2–3·5 mm.
St. 8. 5 adult ♂♂, 6 ♀♀, 2·5–3 mm.
St. 9. A lot of ♂♂, adult and penult. instars, and ♀♀, some ovig., 2–3·5 mm.
St. 10. 19 ♂♂, adult and penult. instars, and ♀♀, 2–3·5 mm.
St. 12. 38 ♂♂, adult and penult. instars, and ♀♀, 2–3·5 mm.
St. 13. 2 adult ♂♂, 3·5 mm. ; 7 ♀♀, 2–2·5 mm.
St. 15. 32 ♂♂ and ♀♀, 2–3·5 mm.
St. 16. Surface, 10 m., 25 m., 40 m. vert. distr. 4 ♂♂, 11 ♀♀, 2–3·5 mm.
St. 18. 44 ♂♂, adult and penult. instars, and ♀♀, 2–3·5 mm.
St. 19. 1 ♂, 2 ♀♀, 3–3·5 mm.
St. 26. 1 ♂, 1 ♀, 3 mm.
St. 27. 11 ♂♂, adult and penult. instars, 10 ♀♀, 3–3·5 mm.
St. 31. 5 ♂♂, adult and penult. instars, 3–3·5 mm.
St. 33. 3 adult ♂♂, 3·5 mm.
St. 34. 4 ♂♂, adult and penult. instars, 3–3·5 mm.
St. 35. 3 ♂♂, 3·5 mm.
St. 37. 8 ♂♂, adult and penult. instars, 3–3·5 mm.
St. 40. 4 ♂♂, 3–3·5 mm.
St. 42. 9 adult ♂♂, 3–3·5 mm., 3 ♀♀, 2–2·5 mm.
St. 44. 3 adult ♂♂, 3–3·5 mm.
St. 45. 2 ♀♀, 3·5 mm.
St. 47. 3 adult ♂♂, 3·5 mm.
St. 48. 8 adult ♂♂, 3·5 mm., 12 ♀♀, 2–2·5 mm.

St. 49 8 ♂♂, adult and penult. instars, and 8 ♀♀, 3–3·5 mm.
St. 50. 6 adult ♂♂, 3·5 mm.
St. 53. 36 ♂♂ and ♀♀, 2–3·5 mm.
St. 54. 13 ♂♂ adult and penult. instars, and 6 ♀♀, 2·5–3·5 mm.
St. 55. 30 ♂♂, adult and penult. instars, and ♀♀, 2–3·5 mm.
St. 56. 3 ♂♂, 3·5 mm.
St. 58. 25 ♂♂ and ♀♀, 2–3·5 mm.
St. 59. 6 adult ♂♂, 21 ♀♀, 2–3 mm.
St. 60. A lot of ♂♂, adult and penult. instars, and ♀♀, 2–3·5 mm.
St. 61. 27 ♂♂ and ♀♀, 2–3·5 mm.
St. 63. 10 ♂♂ and ♀♀, 2–3 mm.
St. 66. 8 ♂♂, adult and penult. instars, and 4 ♀♀, 2–3·5 mm.
St. 67. 4 ♂♂, 15 ♀♀, 2·5–3·5 mm.

Remarks.—As remarked in the " Terra Nova " report (1930, p. 415), the notching of the outer margins of the outer rami of the uropods distinguishes this species from the other species of *Hyperia*.

The species apparently occurs at 0–40 metres ; at St. 19, 45 and 50 closing nets were not used, and there is no evidence to show that the specimens were not caught near the surface. It seems to be generally abundant throughout the year ; males, both adult and in the penultimate instar, and females were caught in all months. It is, however, curious that only one lot (St. 9) contains actually ovigerous females. The date of this haul was August.

Distribution.—Philippine Islands, China Sea, East Indies.

Family Phrosinidae.

Genus *Primno*, Guerin.

Primno macropa, Guerin.

Barnard, 1930, p. 424.

Occurrence.—St. 20. 1 ♂, penultimate instar, 3·5 mm., 3 ♀♀, 3–4 mm.
St. 45. 1 juv., 4 mm.

Distribution.—Indo-Pacific, Mediterranean, Atlantic, Antarctic.

Family Lycaeopsidae.

Genus *Lycaeopsis*, Claus.

Pirlot, 1930, p. 27 (key to species, p. 30).

Lycaeopsis themistoides, Claus.

Barnard, 1930, p. 425.
Pirlot, 1930, p. 27, fig. 8.

Occurrence.—St. 20. 3 ♀♀, 3–4·5 mm.

Distribution.—Indo-Pacific, Mediterranean, Atlantic.

Lycaeopsis zamboangae (Stebbing).

Barnard, 1930, p. 426.
Pirlot, 1930, p. 28, fig. 9.

Occurrence.—St. 49. 1 ♂, 4 mm.
Distribution.—Indo-Pacific, Atlantic.

Family Pronoidae.

Genus *Eupronoe*, Claus.

Eupronoe maculata, Claus.

Barnard, 1930, p. 426.
Pirlot, 1930, p. 33.

Occurrence.—St. 11. 1 ♀, 5 mm.
St. 16. 1 juv., 2·5 mm.
St. 22. 1 ♀, 3 mm.
St. 23. 1 ♂, 5 mm.
St. 50. 1 ♂, 3·5 mm.
Distribution.—Indo-Pacific, tropical and subtropical Atlantic, Mediterranean.

Eupronoe laticarpa, Stephensen.

Stephensen, 1925, p. 161, fig. 57.
Pirlot, 1930, p. 35.

Occurrence.—St. 15. 1 ♀, 3 mm.
Remarks.—Like Stephensen's and Pirlot's specimens, this specimen is also a female.
Distribution.—East Indies, Morocco Coast (Atlantic).

Genus *Sympronoe*, Stebbing.

Sympronoe parva (Claus).

Stebbing, 1888, p. 1533, pl. cxcii.
Stephensen, 1925, p. 162, fig. 58.
Pirlot, 1930, p. 32.

Occurrence.—St. 15. 1 ♂, 4·5 mm.
St. 21. 1 ♀, 5·5 mm.
Distribution.—Indo-Pacific, Mediterranean, Atlantic.

Family Lycaeidae.

Genus *Lycaea*, Dana.

Lycaea bajensis, Shoemaker.

Barnard, 1930, p. 431, fig. 60.

Occurrence.—St. 21. 1 ♂, 5 mm.
St. 23. 5 ♂♂, 5 mm., 11 ♀♀, some ovig., 3–4 mm.
St. 24. A lot of ♂♂ up to 5 mm., ♀♀, some ovig., up to 4 mm.
St. 33. 2 ♂♂, 5 mm.
St. 35. 1 ♂, 5 mm., 2 ovig. ♀♀, 3·5–4 mm.

St. 57. 1 ♂, 4 mm., 1 ovig. ♀, 3·5 mm.
St. 58. 1 ♂, 4 mm., 2 ♀♀, 3·5–4 mm.
St. 59. 1 ovig. ♀, 3·5 mm.
St. 60. 1 ♀, 3·5 mm.

Remarks.—Agrees with the specimens assigned to this species in the " Terra Nova " Report. Pirlot (1930, p. 25) thinks that this is the same as *pulex*.

Distribution.—Californian coast, New Zealand.

Family Brachyscelidae.

Genus *Brachyscelus*, Bate.

Brachyscelus globiceps (Claus).

Stebbing, 1888, p. 1555, pl. cxcvii, c (*latipes*).
Stephensen, 1925, p. 176, fig. 65.

Occurrence.—St. 39. 1 ♂, 4·5 mm.
St. 45. 1 ♀, 5 mm.
St. 49. 1 ♀, 4·5 mm.
St. 50. 1 ovig. ♀, 6·5 mm.

Distribution.—Zanzibar, Southern Pacific, Mediterranean.

Family Oxycephalidae.

Genus *Simorhynchotus*, Stebbing.

Simorhynchotus antennarius (Claus).

Barnard, 1930, p. 433.

Occurrence.—St. 4. 1 ♂, 4 mm.
St. 21. 4 ♂♂, 6 mm.
St. 30. 1 ♂, 6 mm.
St. 30a. 1 ovig. ♀, 4·5 mm.
St. 42. 1 ♂, penult. instar, 4 mm.
St. 46. 2 ♂♂, 4·5 mm.
St. 47. 6 ♀♀ (1 ovig.), 3–3·5 mm.
St. 49. 2 ♂♂, 5–5·5 mm.
St. 52. 1 ♂, 4·5 mm.
St. 58. 1 ♂, 5 mm.
St. 66. 1 ♂, penult. instar, 4·5 mm.

Remarks.—Ovigerous females were caught in March and November.

Distribution.—Indo-Pacific, Mediterranean, Atlantic.

Genus *Oxycephalus*, Milne-Edwards.

Oxycephalus clausi, Bovallius.

Barnard, 1930, p. 433.

Occurrence.—St. 28. 1 juv., 6·5 mm.
St. 35. 1 ♀, 14 mm.

Distribution.—Indo-Pacific, Mediterranean, Atlantic.

Genus *Tullbergella*, Bovallius.

Tullbergella cuspidata, Bovallius.

Bovallius, 1890, p. 69, pl. ii, fig. 13, and text-figs. 1, 12, 18, 23, 27, 40, 51, 59, 61, 74.
Colosi, 1918, p. 212.
Spandl, 1927, p. 191, fig. 22.

Occurrence.—St. 2. 1 ♀, 9 mm.
St. 3. 1 ♂, 6 mm., 4 juv., 3–5 mm.
St. 7. 3 ♀♀, 6–8 mm.
St. 10. 3 ♀♀, 5–6 mm.
St. 11. 4 ♀♀, 6–7 mm.
St. 12. 1 ♂, 2 ♀♀, 5–6 mm.
St. 13. 1 ♀, 6 mm.
St. 16. 1 ♂, 5 mm.
St. 17. 1 ♂, 6 mm., 1 ovig. ♀, 7 mm.
St. 23. 1 ovig. ♀, 6 mm.
St. 24. 8 ♂♂, 5–7 mm., 3 ♀♀, 4–5·5 mm.
St. 37. 2 ♀♀, 3·5–4 mm.
St. 40. 1 juv., 3·5 mm.
St. 41. 1 ♀, 5 mm.
St. 46. 1 ♀, 4·5 mm.
St. 51. 1 ♂, 9 mm., 1 ♀, 8 mm., 13 juv., 3–5 mm.
St. 55. 1 ♀, 5·5 mm. ; 6 juv., 3–3·5 mm.
St. 56. 4 ♂♂, 7–10 mm. ; 5 ♀♀ (3 ovig.), 9–10 mm.
St. 57. 1 ♂, 4 mm.
St. 59. 1 ♂, 9 mm. ; 1 ovig. ♀, 10 mm.
St. 60. 1 juv. ♂, 3 mm.
St. 61. 1 juv. ♀, 3 mm. ; 1 ovig. ♀, 8·5 mm.
Low Isles. From subumbrella surface of ? *Cotylorhiza* sp., 10 ♀♀, 6–9 mm.

Remarks.—Ovigerous females were obtained in the months of May, June, October and November. Colour as preserved, pale horny, in many instances with maroon specks laterally, and along the hind margins of the segments, eyes maroon.

Distribution.—Indian Ocean, Siam, Malay Archipelago.

Genus *Glossocephalus*, Bovallius.

Glossocephalus milne-edwardsi, Bovallius.

Walker, 1904, p. 237, pl. i, fig. 2 (*Elsia indica*, Giles).
Colosi, 1918, p. 221.
Stephensen, 1925, p. 202.
Spandl, 1927, p. 196, fig. 24.

Occurrence.—St. 3. 3 ♂♂, 6–9 mm.
St. 11. 1 ovig. ♀, 6 mm.
St. 36. 1 ♂, penult. instar, 4·5 mm.
St. 37. 1 ♀, 4·5 mm.

St. 43. 1 ♂, 7 mm.
St. 46. 3 ♂♂, 8 mm. ; 1 ♀, 6 mm.
St. 47. 1 ♂, 6 mm.
St. 48. 1 ♀, 6 mm.
St. 56. 1 ♀, 5 mm.
St. 66. 1 ♂, penult. instar, 4·5 mm.

Remarks.—Stephensen regards *spiniger* Bov. as a synonym. The present specimens have the hind (lower) margins of the 6th joints of gnathopods 1 and 2 quite smooth.

Distribution.—Indian Ocean, Mediterranean, tropical Atlantic.

Genus *Leptocotis*, Streets.

Leptocotis tenuirostris (Claus).

Barnard, 1930, p. 435.

Occurrence.—St. 19. 1 ♂, 11 mm.

Distribution.—Indo-Pacific, Atlantic.

Genus *Rhabdosoma*, Ad. & White.

Rhabdosoma armatum (Milne-Edwards).

Barnard, 1930, p. 436.

Occurrence.—St. 32. 1 juv., 10 mm.

Distribution.—Tropical Indo-Pacific and Atlantic.

Rhabdosoma whitei, Bate.

Barnard, 1930, p. 436.

Occurrence.—St. 32. 1 ♂, 30 mm.
St. 35. 1 juv. ♂, 15 mm.
St. 36. 1 ovig. ♀, 25 mm. (mutilated).

Remarks.—The ovigerous female lacks the uropods and telson, and consequently the identification may not be correct.

Distribution.—Indo-Pacific, Atlantic.

Family Thyropidae.

(Parascelidae, auctt.).

Genus *Parascelus*, Claus.

Parascelus edwardsii, Claus.

Stebbing, 1888, p. 1496, pl. clxxxv.
Stephensen, 1925, p. 211, fig. 83.
Pirlot, 1930, p. 35.

Occurrence.—St. 4. 1 ♂, 6 mm.
St. 8. 1 ♀, 5 mm.

Distribution.—Indo-Pacific, Mediterranean, Atlantic.

Family Platyscelidae.

Genus *Tetrathyrus*, Claus.

Tetrathyrus forcipatus, Claus.

Barnard, 1930, p. 439.
Pirlot, 1930, p. 42, fig. 11.

Occurrence.—St. 29. 9 ♂♂, 1 ♀ with embryos, 5 mm. (*arafurae*).
St. 32. 8 specimens, 2–3 mm.
St. 40. 2 ovig. ♀♀, 3 mm.
St. 41. 1 specimen, 2 mm.
St. 45. 1 ♂, 5 mm. (*arafurae*).
St. 52. 7 specimens, 2–3 mm.
St. 56. 2 specimens, 3 mm.
St. 59. 2 specimens, 2·5 mm.
St. 67. 1 specimen, 2·5 mm.

Remarks.—*T. moncoeuri* Stebb. and *arafurae* Stebb. are to be regarded as synonymous. Both typical *forcipatus* and *arafurae* occur in the present collection, the apex of the telson in the latter being markedly truncate, more so than in Pirlot's figure.

Distribution.—Red Sea, California, East Indies, East Australia and New Zealand, Mediterranean and tropical Atlantic.

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